

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

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Remarks:

Applicant has read and considered the Office Action dated January 8, 2008 and the references cited therein. Claims 1-4, 6-7 and 13 have been amended. Claims 5, 10 and 11 have been cancelled without prejudice or disclaimer. New claim 15 has been added. Claims 1-4, 6-9 and 12-15 are currently pending. Reconsideration and reexamination are hereby requested.

The Office Action stated that the listing of references in the specification is not a proper Information Disclosure Statement. Applicant submits herewith an Information Disclosure Statement including a proper listing of references discussed in the specification. Applicant asserts that the Information Disclosure Statement is in proper form and requests that the Form 1449 be initialed and returned indicating that the references have been considered by the Examiner.

The drawings were objected to because they do not include reference signs for all reference numerals discussed in the disclosure, specifically, reference numerals 53 and 54. Reference numerals 53 and 54 have been deleted from the specification. Applicant asserts that the specification is still readily clear and enabling and asserts that the drawings are consistent with the specification. Applicant asserts that the objection to the drawings has been overcome and requests that the rejection be withdrawn.

The Office Action indicated that proper headings were not included. Proper headings have been added.

The disclosure was objected to because the number of drawings on page 4 is unclear. The Brief Description of the Drawings has been amended to clarify that there is a Figure 2a and a Figure 2b. In addition, there was inconsistent language used with regard to the funnel and filter.

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

Claim 1 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 1 has been amended and positively recites structure and provides clear relationships and connections between the various elements. Applicant asserts that the indefiniteness rejection of claim 1 has been overcome. In addition, claim 6 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite, as "the spillway" in the last line of the claim lacks antecedent basis. Claim 6 has been amended so that the prior reference to the spillway has been eliminated. Applicant asserts that the rejections under 35 U.S.C. § 112, second paragraph, have been overcome and requests that the rejections be withdrawn.

Claims 1, 7-9, 12 and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber. The Office Action states that Fieber teaches a dosing chamber to be placed in the holding chamber of a molten metal furnace in which the molten metal is discharged through a port up into a metal receiver. The Office Action states that the molten metal flows up a stock tube measurable via a flow sensor through a shot sleeve and into a pour cup or something similar. The Action states that Fieber does not teach a sealable outlet opening in the conveying tube but that it would have been obvious to one of ordinary skill in the art to modify Fieber's invention to include one in order to ease and regulate the flow of molten metal as well as to discourage backflow. The Action states that valves are well known in the art for this purpose. The Action further states that Fieber does teach the use of a stopper tube and closes up a different opening present in the dosing chamber. The Office Action contends that while Fieber fails to teach a sealable outlet opening in the conveying tube, it does teach its mechanism. Moreover, the Action states that Fieber does not teach the metering chamber to be specifically rotatably and tiltably mounted in the holding furnace but does teach a dosing chamber insertable within and removable from the furnace. The Office Action states that use of movement of the dosing chamber in the holding furnace is taught and that it would have been obvious to one of ordinary skill in the art to try and tilt and rotate as necessary to ease the process of die casting.

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

Applicant respectfully traverses the rejection. Fieber discloses a dosing chamber without a sealable outlet without a controlled discharge valve to the outlet. Applicant asserts that element 31 of Fieber is arranged to introduce nitrogen or other inert gas as discussed in column and to close port 24. Therefore, only a stream of inert gas presses liquid metal to the outlet. Applicant asserts that there is no further regulation and the metal will flow back into the chamber without a sufficient pressure of the gas.

Fieber and any other prior art fails to teach or suggest a rotatably tiltably metering chamber with a conveying tube mounted in the furnace. This provides for precise metering and adjustable angles to balance out displacements between the furnace, metering devices and die casting machine to have a safer operation and to decrease insulation and to simply installation and decrease installation costs. Applicant asserts that without improper use of hindsight, Fieber and any other prior art does not teach or suggest the furnace recited in claim 1.

Although the Office Action states that it would have been obvious to one of ordinary skill in the art to try and tilt and rotate as necessary to ease the process of die casting, Applicant asserts that there is no support for such a position. The Office Action only recites that the dosing chamber is insertable within and removable from the furnace. This statement from the Abstract is expanded to be teaching the use of movement of the dosing chamber and the holding furnace. Then with a further leap in logic, the Action states that it would have been obvious to one of ordinary skill in the art to tilt and rotate as necessary to ease the process of die casting. Applicant asserts that one of ordinary skill in the art would not arrive at mounting for rotation and tilting based on the simple statement that the dosing chamber is insertable within and removable from the furnace. The rotation and tilting is a substantially different operation and requires different configurations than having something simply insertable and removable from the furnace. Applicant asserts that without improper use of hindsight, it would not be obvious to one of ordinary skill in the art to provide for rotation and tilting for mounting the metering chamber with a conveying tube and a holding furnace. Applicant asserts that none of the other

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

prior art teaches or suggests such a holding furnace with a metering chamber advantageously mounted.

Applicant asserts that claim 1 patentably distinguishes over Fieber and any other prior art or combination thereof and requests that the rejection be withdrawn. Applicant further asserts that claims 7-9 also patentably distinguish over Fieber or any other prior art for at least the same reasons as well as others.

With regard to claim 12, the Action states that it would have been obvious to one of ordinary skill in the art to modify Fieber's invention with a docking unit to increase stability and create a support for the casting chamber, mold or something similar and a positioning aid to ease the process of die casting, which goes along the same reasoning for the ability to tilt and rotate described previously. The Action states that it is well known in the art that a docking unit and a positioning aid serve these purposes.

Applicant asserts that the Office Action does not provide support for the contention that it is well known in the art that a docking unit and positioning aid serve these purposes. Applicant asserts that a conveying tube having a docking unit and provided with a positioning aid would not be obvious to one of ordinary skill in the art. The use of a docking unit and positioning aid provide advantages when combined with rotation and tilting that are also not obvious for positioning and improved movement for die casting that are not possible with the prior art. Although the Office Action states that it would have been obvious, no support is provided for the particularly recited rotation, tilting, docking unit or positioning unit. Applicant asserts that the combination of these elements provides operational and functional advantages that are not possible with the prior art and non-obvious in view of the prior art. Applicant asserts that claim 12 patentably distinguishes over the prior art for at least these reasons.

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

Moreover, the Office Action states that with regard to claim 13, it would have been obvious to try various shapes for the design of the positioning aid and prefer one shape over another if it serves its purpose better. The Action states that the spherical cap was found to be most suitable. Applicant asserts that the combination of the spherical cap along with the rotation and tilting provides greater operational and functional performance over the prior art. Applicant asserts that again, no support is provided other than an allegation that it would have been obvious. Applicant asserts that use of the spherical cap when combined with the other limitations of claim 1 provides non-obvious advantages over the prior art and Applicant asserts that claim 13 patentably distinguishes over the prior art.

Applicant asserts that the rejection over Fieber has been overcome and requests that the rejection be withdrawn.

Claim 2 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber in view of Beatenbough. Applicant asserts that Beatenbough is only directed to a valve for automotive air conditioning and is unsuitable for use in a furnace wherein hot liquid flows at temperatures of 700°C and above. Beatenbough only teaches a valve for ambient temperature. Applicant asserts that claim 1 patentably distinguishes over Fieber and that Beatenbough fails to overcome the shortcomings of Fieber. Applicant asserts that claim 2 patentably distinguishes over the combination of Fieber, Beatenbough and any other prior art or combination thereof. Applicant requests that the rejection be withdrawn.

Claims 3 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber in view of Krause. Krause is generally directed to a high temperature apparatus for melting metals, but the electrodes are reduced by arc lightning extended by feed rolls and would burn down. Applicant asserts that the electrodes of the present application are configured so that they do not melt down. Applicant asserts that the Krause electrodes are not applicable and would not function with the recited holding furnace and temperatures encountered. Applicant asserts that

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

Krause fails to overcome the shortcomings of Fieber. Applicant asserts that claim 1 patentably distinguishes over the combination of Fieber and Krause and that claims 3 and 6 also patentably distinguish for at least the same reasons as well as others. Applicant requests that the rejection over Fieber and Krause be withdrawn.

Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber, Krause and Baum. Baum teaches electrodes, but they are used for a vacuum switch. Applicant asserts that the electrodes of Baum are completely unrelated to the field of furnaces and that they could not function in such an environment. Applicant asserts that one of ordinary skill in the art would not look to Baum to achieve a furnace as recited in claim 4. Applicant asserts that Baum fails to overcome the shortcomings of Fieber and Krause. Applicant asserts that claim 1 patentably distinguishes over the combination of Fieber, Krause and Baum and that claim 4 also patentably distinguishes over the same combination of references and/or any other prior art. Applicant requests that the rejection over Fieber, Kraus and Baum be withdrawn.

Claim 5 was rejected as being unpatentable over 35 U.S.C. § 103(a) as being unpatentable over Fieber in view of Greenleaf. Claim 5 has been cancelled and Applicant asserts that the rejection is moot.

Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber in view of Kemper. Claim 10 has been cancelled and Applicant asserts that the rejection is moot.

Claim 11 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber in view of Leshner. Claim 11 has been cancelled and Applicant asserts that the rejection is moot.

Finally, claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Fieber in view of Hara. Hara relates to a fuse remote from a furnace. Insulating material such as synthetic resins disclosed in Hara cannot be used for furnaces having extremely high

U.S. Patent Application Serial No. 10/553,023
Reply to Office Action dated January 8, 2008

temperatures and are not equivalent or obvious variations of ceramic insulators. Applicant asserts that Hara fails to overcome the shortcomings of Fieber and Applicant asserts that claim 1 patentably distinguishes over the combination of Fieber, Hara and any other prior art or combination thereof. Moreover, claim 14 is also believed to distinguish over the prior art for at least the same reasons. Applicant requests that the rejection over Fieber and Hara be withdrawn.

New claim 15 recites a passive inlet valve that is neither shown nor suggested by any of the cited prior art or combination thereof. Applicant asserts that claim 15 patentably distinguishes over the prior art.

A speedy and favorable action in the form of a Notice of Allowance is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicant's representative at (612) 336-4728.



Respectfully submitted,

MERCHANT & GOULD P.C.

Dated: 4/8/08

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